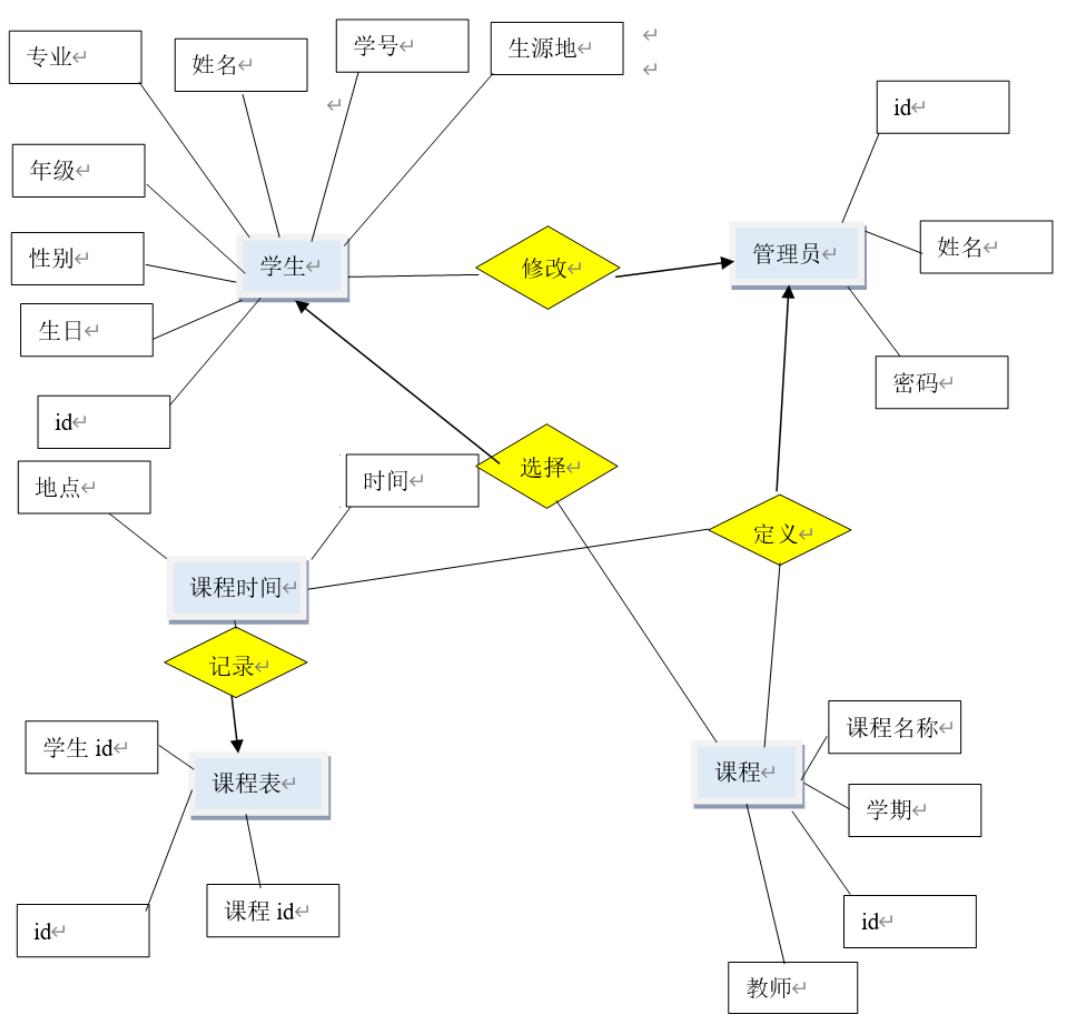


一. 数据库设计

1.1 概念模式设计



1.2 逻辑模式设计

学生 (学生 id, 学生姓名, 学生学号, 学生密码, 学生年级, 学生专业, 学生日, 身份, 学生户籍)

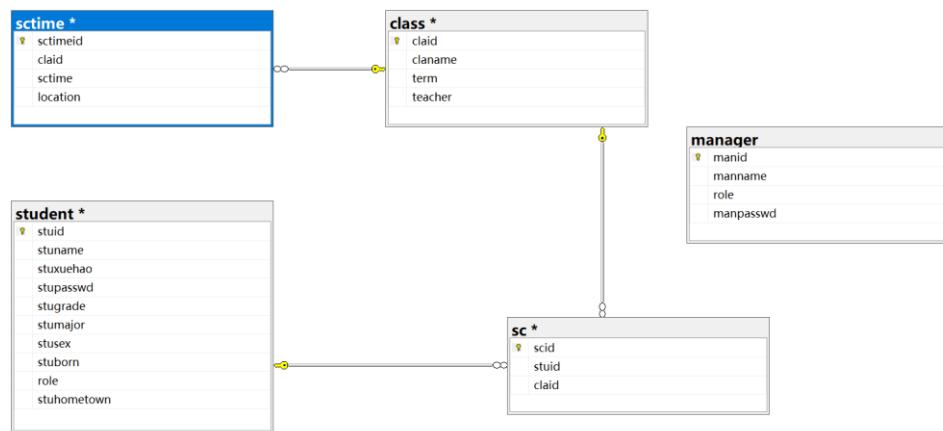
管理员 (管理员 id, 管理员姓名, 身份, 管理员密码。)

课程：（课程 id, 课程名称, 学期, 任课老师。）

课程表：（课程表 id, 学生 id, 课程 id.）

课程时间：（课程时间 id, 课程 id, 时间, 地点。）

1.3 物理数据库设计



1.4 触发器设计

Create trigger cldelete1 on [dbo].[class] after delete

As

```
Delete from [dbo].[sctime] where [claid] = (select [claid] from deleted)
```

go

Create trigger cldelete2 on [dbo].[class] after delete

As

```
Delete from [dbo].[sc] where [claid] = (select [claid] from deleted)
```

go

1.5 存储过程设计

1) 初始化课程

```
INSERT [dbo].[class] ([claid], [claname], [term], [teacher]) VALUES (1, N'大学英语四级', N'2425  
第一学期', N'孙丹')
```

```
INSERT [dbo].[class] ([claid], [claname], [term], [teacher]) VALUES (2, N'电气技术基础', N'2324  
第二学期', N'袁弘良')
```

```
INSERT [dbo].[class] ([claid], [claname], [term], [teacher]) VALUES (3, N'电子学与数字技术 2',  
N'2425 第一学期', N'霍勇')
```

```
INSERT [dbo].[class] ([claid], [claname], [term], [teacher]) VALUES (4, N'机械设计基础', N'2425
```

第一学期', N'谢春')

```
INSERT [dbo].[class] ([claid], [claname], [term], [teacher]) VALUES (5, N'数据库技术与应用', N'2425 第一学期', N'王睿智')
```

```
INSERT [dbo].[class] ([claid], [claname], [term], [teacher]) VALUES (6, N'人工智能技术与应用', N'2425 第二学期', N'王睿智')
```

2) 初始化管理员

```
INSERT [dbo].[manager] ([manid], [manname], [role], [manpasswd]) VALUES (2259999, N'clj', N'管理员', N'4321')
```

3) 初始化课程表

```
INSERT [dbo].[sc] ([scid], [stuid], [claid]) VALUES (7, 2251115, 1)
```

```
INSERT [dbo].[sc] ([scid], [stuid], [claid]) VALUES (8, 2251115, 2)
```

```
INSERT [dbo].[sc] ([scid], [stuid], [claid]) VALUES (9, 2251115, 4)
```

4) 初始化课程时间

```
INSERT [dbo].[sctime] ([sctimeid], [claid], [sctime], [location]) VALUES (1, 1, N'星期一第一节', N'A102')
```

```
INSERT [dbo].[sctime] ([sctimeid], [claid], [sctime], [location]) VALUES (2, 1, N'星期一第二节', N'A102')
```

```
INSERT [dbo].[sctime] ([sctimeid], [claid], [sctime], [location]) VALUES (3, 2, N'星期一第三节', N'B102')
```

```
INSERT [dbo].[sctime] ([sctimeid], [claid], [sctime], [location]) VALUES (4, 3, N'星期一第一节', N'A104')
```

```
INSERT [dbo].[sctime] ([sctimeid], [claid], [sctime], [location]) VALUES (5, 3, N'星期一第二节', N'A104')
```

```
INSERT [dbo].[sctime] ([sctimeid], [claid], [sctime], [location]) VALUES (6, 4, N'星期三第一节', N'B102')
```

```
INSERT [dbo].[sctime] ([sctimeid], [claid], [sctime], [location]) VALUES (7, 4, N'星期三第二节', N'B102')
```

```
INSERT [dbo].[sctime] ([sctimeid], [claid], [sctime], [location]) VALUES (8, 5, N'星期一第一节', N'A203')
```

```
INSERT [dbo].[sctime] ([sctimeid], [claid], [sctime], [location]) VALUES (9, 5, N'星期一第二节', N'A203')
```

```
INSERT [dbo].[sctime] ([sctimeid], [claid], [sctime], [location]) VALUES (10, 6, N'星期一第三节', N'A103')
```

```
INSERT [dbo].[sctime] ([sctimeid], [claid], [sctime], [location]) VALUES (11, 6, N'星期一第四节', N'A103')
```

5) 初始化学生

```
INSERT [dbo].[student] ([stuid], [stuname], [stuxuehao], [stupasswd], [stugrade], [stumajor], [stusex], [stuborn], [role], [stuhome town]) VALUES (1, N'刘荃亨', N'2251115', N'1234', N'大三', N'中德机械电子', N'男', N'2024-09-01', N'学生', N'天只因')
```

```
INSERT [dbo].[student] ([stuid], [stuname], [stuxuehao], [stupasswd], [stugrade], [stumajor], [stusex], [stuborn], [role], [stuhome town]) VALUES (2, N'赵建峰', N'2253465', N'1234', N'大三', N'中德经济工程', N'男', N'2024-09-01', N'学生', N'张掖')
```

```
INSERT [dbo].[student] ([stuid], [stuname], [stuxuehao], [stupasswd], [stugrade], [stumajor], [stusex], [stuborn], [role], [stuhome town]) VALUES (3, N'王浩喻', N'2253132', N'1234', N'大三', N'')
```

N'中德汽车服务', N'男', N'2024-09-01', N'学生', N'坤明')

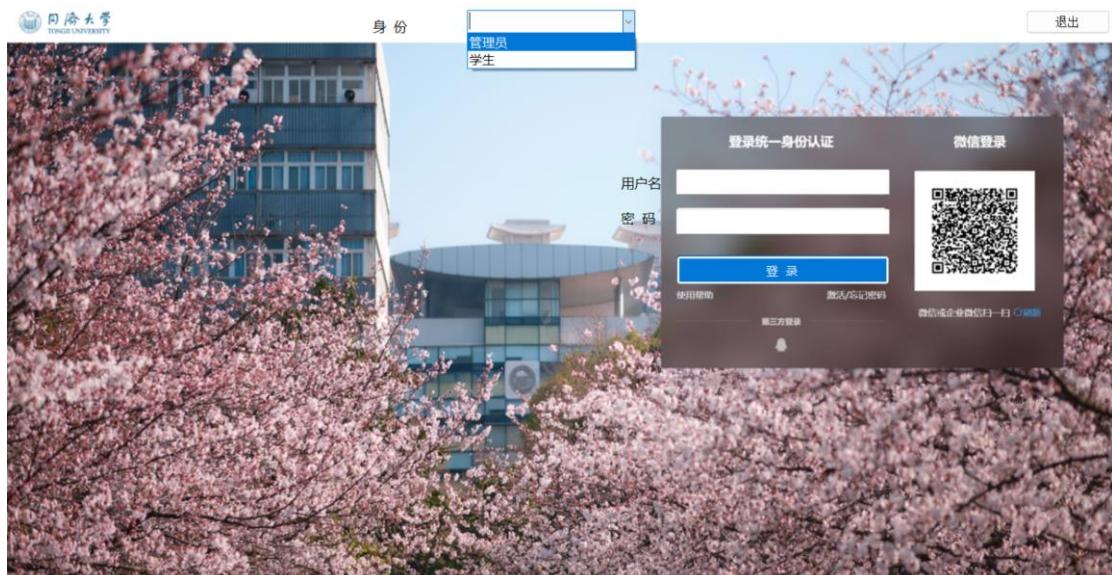
二. 系统设计和实现

2.1 窗体类和功能类统计表

访问对象	访问功能	窗体数量
未确认身份	登录	1
学生	查看课程表, 查询课程, 选课, 修改密码	4
管理员	添加管理员信息, 修改管理员信息, 开设课程, 查询课程, 添加学生信息, 修改学生信息, 修改密码	7

2.2 界面设计及其代码实现

1) 登录



```
代码: private void button1_Click(object sender, EventArgs e)
{
    name = textBoxname.Text.Trim();
    role = this.comboBoxrole.SelectedItem.ToString();
    if (name == "" || textBoxpasswd.Text.Trim() == "" || role == "")
    {
        MessageBox.Show("请将信息输入完整!");
    }
    else
```

```

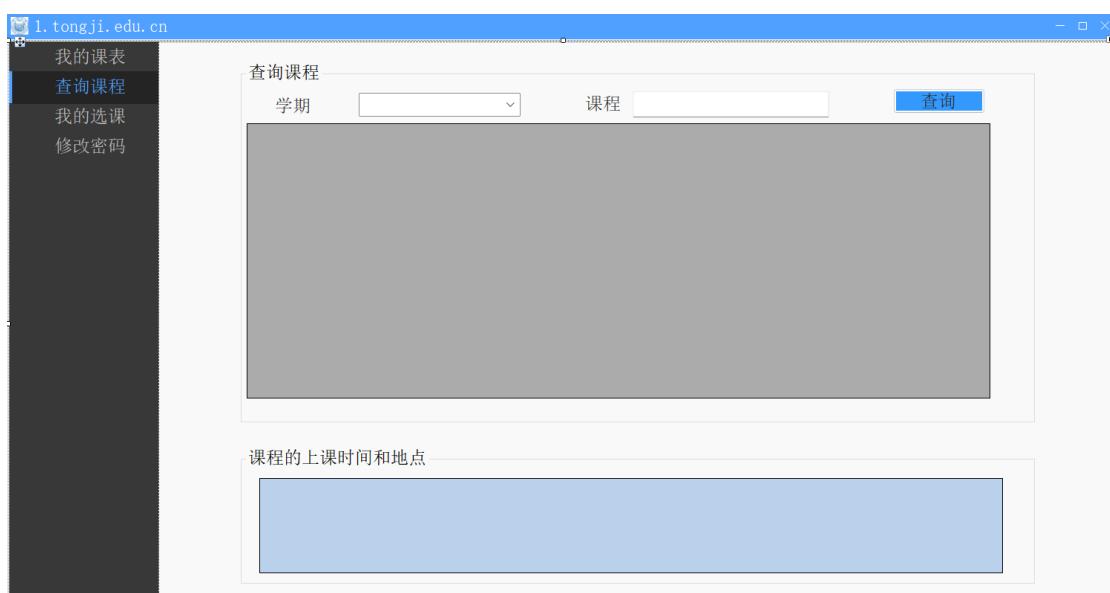
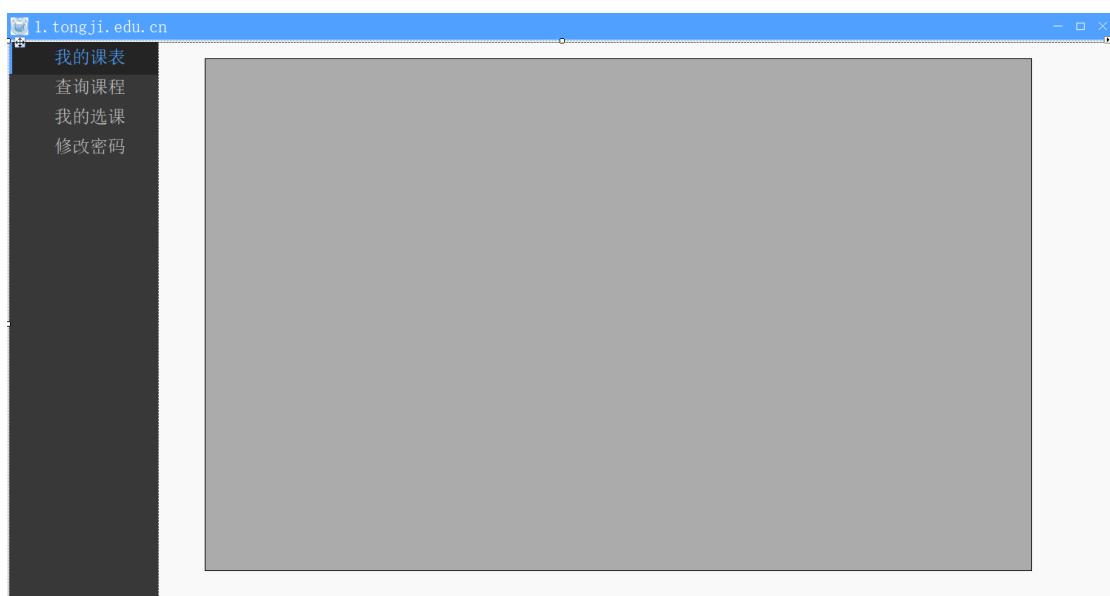
{
    SqlConnection conn = new SqlConnection(登陆.connectionString);
    conn.Open();
    if (role == "管理员")
    {
        string sql = "select manname,manpasswd from manager where role='管
理员' and manname='"
        + name +
        "' and manpasswd='"
        + textBoxpasswd.Text.Trim() + "'";
        SqlDataAdapter adp = new SqlDataAdapter(sql, conn);
        DataSet ds = new DataSet();
        adp.Fill(ds);
        if (ds.Tables[0].Rows.Count > 0)
        {
            conn.Close();
            管理员界面 mainframe = new 管理员界面();
            mainframe.BringToFront();
            mainframe.Show();
            this.Hide();
        }
        else
        {
            MessageBox.Show("用户名或者密码错误！");
        }
    }
    else if (role == "学生")
    {
        string sql1 = "select stuxuehao,stupasswd from student where role='
学生' and stuxuehao='"
        + name +
        "' and stupasswd='"
        + textBoxpasswd.Text.Trim() + "'";
        SqlDataAdapter adp = new SqlDataAdapter(sql1, conn);
        DataSet ds = new DataSet();
        adp.Fill(ds);
        if (ds.Tables[0].Rows.Count > 0)
        {
            //this.Close();
            conn.Close();
            学生UI mainframe = new 学生UI();
            mainframe.BringToFront();
            mainframe.Show();
            this.Hide();
        }
        else
        {

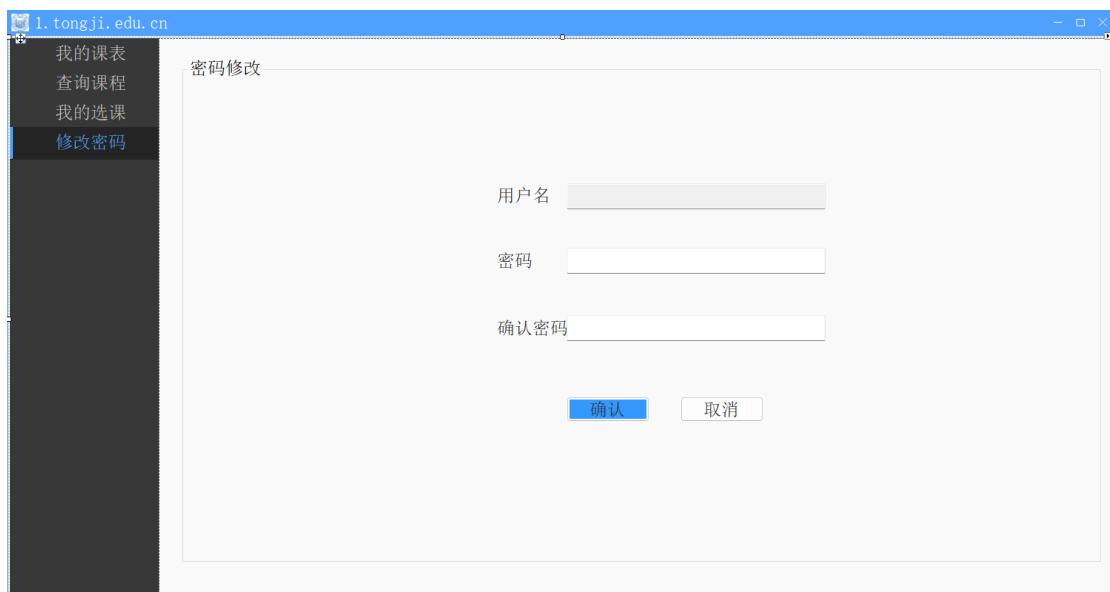
```

```
        MessageBox.Show("用户名或者密码错误！");  
    }  
}
```

}

2) 学生系统





代码: `private void 学生UI_Load(object sender, EventArgs e)`

```
{  
    //首先得到用户的id  
    string stuxuehao = 登陆.getStudent();  
    SqlConnection conn = new SqlConnection(登陆.connectionString);  
    conn.Open();  
    string sql = "select stuid from student where stuxuehao = '" + stuxuehao +  
    "'";  
    SqlCommand cmd = new SqlCommand(sql, conn);  
    String id1 = cmd.ExecuteScalar().ToString();  
    int stuid = 0;  
    int.TryParse(id1, out stuid);  
    //用到两个数据库的连接操作
```

```

        sql = "select class.claid as 课程id,class.claname as 课程名称,class.teacher
as 教师姓名,class.term as 学期," +
                "sctime.sctime as 上课时间,sctime.location as 上课地点 from
sc,sctime,class where class.claid=sc.claid and sc.claid=sctime.claid and sc.stuid=" +
stuid;
        SqlDataAdapter adp1 = new SqlDataAdapter(sql, conn);
        DataSet ds = new DataSet();
        adp1.Fill(ds);
        //载入基本信息
        dataGridView1.DataSource = ds.Tables[0].DefaultView;
        conn.Close();
        textBox4.Text = 登陆.getStudent();
        textBox5.Text = 登陆.getStudent();
    }

private void button1_Click(object sender, EventArgs e)
{
    while (dataGridView3.Rows.Count != 0)
    {
        dataGridView3.DataSource = null;
    }
    if (comboBoxterm.Text == "" && textBoxclass.Text == "")
    {
        MessageBox.Show("请输入查询信息！");
    }
    else if (comboBoxterm.Text != "" && textBoxclass.Text == "")
    {
        SqlConnection conn = new SqlConnection(登陆.connectionString);
        conn.Open();
        string sql = "select claid as 课程id,claname as 课程名,term as 学
期,teacher as 老师 from class where term = '" + comboBoxterm.SelectedItem.ToString() +
"';
        SqlDataAdapter adp1 = new SqlDataAdapter(sql, conn);
        DataSet ds = new DataSet();
        adp1.Fill(ds);
        //载入基本信息
        dataGridView3.DataSource = ds.Tables[0].DefaultView;
        conn.Close();
    }
    else if (textBoxclass.Text != "" && comboBoxterm.Text == "")
    {

        SqlConnection conn = new SqlConnection(登陆.connectionString);
        conn.Open();
        //textBox1.Text.Trim()  textBox2.Text.Trim()
    }
}

```

```

        string sql = "select claid as 课程id,claname as 课程名,term as 学
期,teacher as 老师 from class where claname = '" + textBoxclass.Text + "'";
        SqlDataAdapter adp1 = new SqlDataAdapter(sql, conn);
        DataSet ds = new DataSet();
        adp1.Fill(ds);
        //载入基本信息
        dataGridView3.DataSource = ds.Tables[0].DefaultView;
        conn.Close();

    }

else if (textBoxclass.Text != "" && comboBoxterm.Text != "")
{

    SqlConnection conn = new SqlConnection(登陆.connectionString);
    conn.Open();
    //textBox1.Text.Trim()  textBox2.Text.Trim()
    string sql = "select claid as 课程id,claname as 课程名,term as 学
期,teacher as 老师 from class where claname = '" + textBoxclass.Text + "' and term ="
+ comboBoxterm.SelectedItem.ToString() + "'";
    SqlDataAdapter adp1 = new SqlDataAdapter(sql, conn);
    DataSet ds = new DataSet();
    adp1.Fill(ds);
    //载入基本信息
    dataGridView3.DataSource = ds.Tables[0].DefaultView;
    conn.Close();
}

private void dataGridView3_RowHeaderMouseClick(object sender,
DataGridViewCellEventArgs e)
{
    if (dataGridView3.SelectedCells.Count != 0)
    {
        string claid = dataGridView3.SelectedRows[0].Cells[0].Value.ToString();
        SqlConnection conn = new SqlConnection(登陆.connectionString);
        conn.Open();
        string sql = "select sctime as 上课时间,location as 上课地点 from
sctime where claid=" + claid;
        SqlDataAdapter adp1 = new SqlDataAdapter(sql, conn);
        DataSet ds = new DataSet();
        adp1.Fill(ds);
        //载入基本信息
        dataGridView2.DataSource = ds.Tables[0].DefaultView;
        conn.Close();
    }
}

```

```
        }

    }

private void button5_Click(object sender, EventArgs e)
{
    this.Close();
}

private void button6_Click(object sender, EventArgs e)
{
    string passwd = textBox2.Text;
    string quepasswd = textBox3.Text;
    SqlConnection conn = new SqlConnection(登陆.connectionString);
    conn.Open();
    if (passwd == "" || quepasswd == "") {
        MessageBox.Show("请将信息填写完整!");
    }
    else {
        if (quepasswd != passwd) {
            MessageBox.Show("两次输入的密码不一致!");
        }
        else {
            SqlCommand cmd = new SqlCommand();
            cmd.Connection = conn;
            string sql = "update student set stupasswd ='" + passwd + "'";
            where stuxuehao = ' " + textBox4.Text + " ' ;
            cmd.CommandText = sql;
            cmd.ExecuteNonQuery();
            MessageBox.Show("修改密码成功!");
        }
    }
    conn.Close();
}
```

```

private void button7_Click(object sender, EventArgs e)
{
    string flags = "1";
    //得到stuid
    string stuxuehao = textBox5.Text;
    SqlConnection conn = new SqlConnection(登陸.connectionString);
    conn.Open();
    string sql = "select stuid from student where stuxuehao = '" + stuxuehao +
    "'";
    SqlCommand cmd = new SqlCommand(sql, conn);
    String id1 = cmd.ExecuteScalar().ToString();

    int.TryParse(id1, out stuid);
    //得到课程的id
    int claid = 0;
    int.TryParse(textBoxid.Text, out claid);
    //查询你在该时间是否有课
    sql = "select sctime from sctime where claid =" + claid;
    SqlDataAdapter adp = new SqlDataAdapter(sql, conn);
    DataSet ds = new DataSet();
    adp.Fill(ds);
    for (int i = 0; i < ds.Tables[0].Rows.Count; i++)
    {
        DataRow dr = ds.Tables[0].Rows[i];
        string time = dr[0].ToString();//第一列
        sql = "select * from sc,sctime,class where class.claid = sc.claid and
class.claid = sctime.claid and sctime = '" + time + "' and sc.stuid =" + stuid;
        SqlDataAdapter adp1 = new SqlDataAdapter(sql, conn);
        DataSet ds1 = new DataSet();
        adp1.Fill(ds1);
        if (ds1.Tables[0].Rows.Count > 0)
        {
            flags = "2";
            MessageBox.Show("课程上课时间冲突！");
            break;
        }
    }
    if (flags == "1")
    {
        sql = "insert into sc(claid,stuid) values(" + claid + "," + stuid +
    ")";
        cmd.CommandText = sql;
        if (cmd.ExecuteNonQuery() > 0)
        {

```

```

        MessageBox.Show("选课成功！");
    }

}

if (listBox1.Items.Count > 0)
{//清空所有项
    listBox1.Items.Clear();
}

sql = "select class.claname  from sc,class where sc.claid = class.claid and
stuid=" + stuid;
SqlDataAdapter adp2 = new SqlDataAdapter(sql, conn);
DataSet ds2 = new DataSet();
adp2.Fill(ds2);
foreach (DataRow row in ds2.Tables[0].Rows)
{
    listBox1.Items.Add(row[0].ToString());
}
conn.Close();
}

private void comboBox1_SelectedIndexChanged(object sender, EventArgs e)
{
    while (dataGridView4.Rows.Count != 0)
    {
        dataGridView4.DataSource = null;
    }
    string term = comboBox1.SelectedItem.ToString();
    Console.WriteLine(term);
    SqlConnection conn = new SqlConnection(登陆.connectionString);
    conn.Open();
    string sql = "select claid as 课程id,claname as 课程 from class where
term=" + term + "'";
    SqlDataAdapter adp1 = new SqlDataAdapter(sql, conn);
    DataSet ds = new DataSet();
    adp1.Fill(ds);
    //载入基本信息
    dataGridView4.DataSource = ds.Tables[0].DefaultView;
    conn.Close();
}

private void mos_click(object sender, DataGridViewCellMouseEventArgs e)
{
    textBoxid.Text = dataGridView4.SelectedRows[0].Cells[0].Value.ToString();
    textBox1.Text = dataGridView4.SelectedRows[0].Cells[1].Value.ToString();
}

```

```

        }

private void button2_Click(object sender, EventArgs e)
{
    this.Close();
}

private void button4_Click(object sender, EventArgs e)
{
    string claname = listBox1.SelectedItem.ToString();
    SqlConnection conn = new SqlConnection(登陸.connectionString);
    conn.Open();
    string sql = "select claid from class where claname = '" + claname + "'";
    SqlCommand cmd = new SqlCommand(sql, conn);
    String id1 = cmd.ExecuteScalar().ToString();
    int claid = 0;
    int.TryParse(id1, out claid);
    sql = "delete from sc where claid = " + claid + " and stuid = " + stuid;
    cmd.CommandText = sql;
    if (cmd.ExecuteNonQuery() > 0)
    {
        MessageBox.Show("删除成功!");
        if (listBox1.Items.Count > 0)
        {//清空所有项
            listBox1.Items.Clear();
        }
        sql = "select class.claname from sc,class where sc.claid = class.claid
and stuid=" + stuid;
        SqlDataAdapter adp2 = new SqlDataAdapter(sql, conn);
        DataSet ds2 = new DataSet();
        adp2.Fill(ds2);
        foreach (DataRow row in ds2.Tables[0].Rows)
        {
            listBox1.Items.Add(row[0].ToString());
        }
    }
    conn.Close();
}

private void button3_Click(object sender, EventArgs e)
{
}

```

```

        this.Close();
    }

    private void dataGridView1_CellContentClick(object sender,
DataGridviewCellEventArgs e)
{
}

// 定义一个布尔标志，标记是否是第一次选择标签
private bool isFirstSelection = true;

private void uiTabControlMenu1_SelectedIndexChanged(object sender, EventArgs e)
{
    // 只在第一次选择标签时执行
    if (isFirstSelection)
    {
        选课须知 mainframe = new 选课须知();
        mainframe.BringToFront();
        mainframe.Show();

        // 设置标志为 false，表示不再执行这个操作
        isFirstSelection = false;
    }
}

```

3) 管理员系统



代码: `private void treeView1_AfterSelect(object sender, TreeViewEventArgs e)`

```

{
    switch (this.treeView1.SelectedNode.Text)
    {

```

```
case"开设课程":  
    开课 f1 = new 开课();  
    f1.TopLevel = false;  
    f1.FormBorderStyle = FormBorderStyle.None;  
    f1.WindowState = FormWindowState.Maximized;  
  
    panel2.Controls.Add(f1);  
    f1.Show();  
    break;  
case"查询课程":  
    查询课程 f2 = new 查询课程();  
    f2.TopLevel = false;  
    f2.FormBorderStyle = FormBorderStyle.None;  
    f2.WindowState = FormWindowState.Maximized;  
  
    panel2.Controls.Add(f2);  
    f2.Show();  
    break;  
case"添加管理员信息":  
    添加管理员信息 f3 = new 添加管理员信息();  
    f3.TopLevel = false;  
    f3.FormBorderStyle = FormBorderStyle.None;  
    f3.WindowState = FormWindowState.Maximized;  
  
    panel2.Controls.Add(f3);  
    f3.Show();  
    break;  
case"修改管理员信息":  
    修改管理员信息 f4 = new 修改管理员信息();  
    f4.TopLevel = false;  
    f4.FormBorderStyle = FormBorderStyle.None;  
    f4.WindowState = FormWindowState.Maximized;  
  
    panel2.Controls.Add(f4);  
    f4.Show();  
    break;  
case"添加学生信息":  
    添加学生信息 f5 = new 添加学生信息();  
    f5.TopLevel = false;  
    f5.FormBorderStyle = FormBorderStyle.None;  
    f5.WindowState = FormWindowState.Maximized;  
  
    panel2.Controls.Add(f5);
```

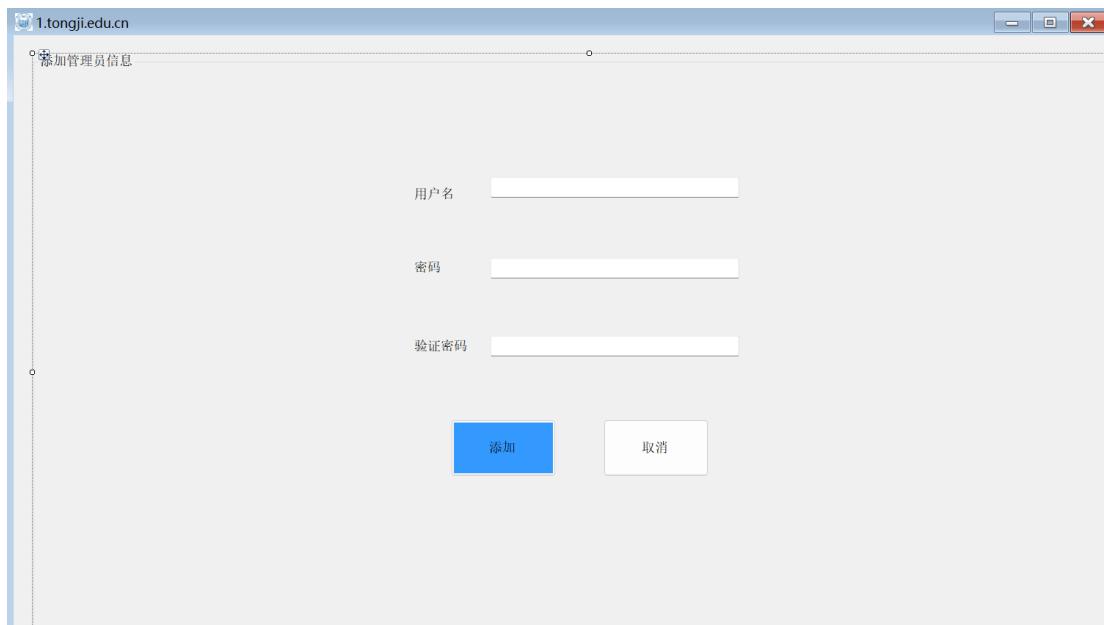
```

        f5.Show();
        break;
    case "修改学生信息":
        modifystuForm f6 = new modifystuForm();
        f6.TopLevel = false;
        f6.FormBorderStyle = FormBorderStyle.None;
        f6.WindowState = FormWindowState.Maximized;

        panel2.Controls.Add(f6);
        f6.Show();
        break;
    case "退出系统":
        Application.Exit();
        break;
    case "修改密码":
        密码修改 f7 = new 密码修改();
        f7.TopLevel = false;
        f7.FormBorderStyle = FormBorderStyle.None;
        f7.WindowState = FormWindowState.Maximized;
        panel2.Controls.Add(f7);
        f7.Show();
        break;
    }
}

```

4) 添加管理员信息



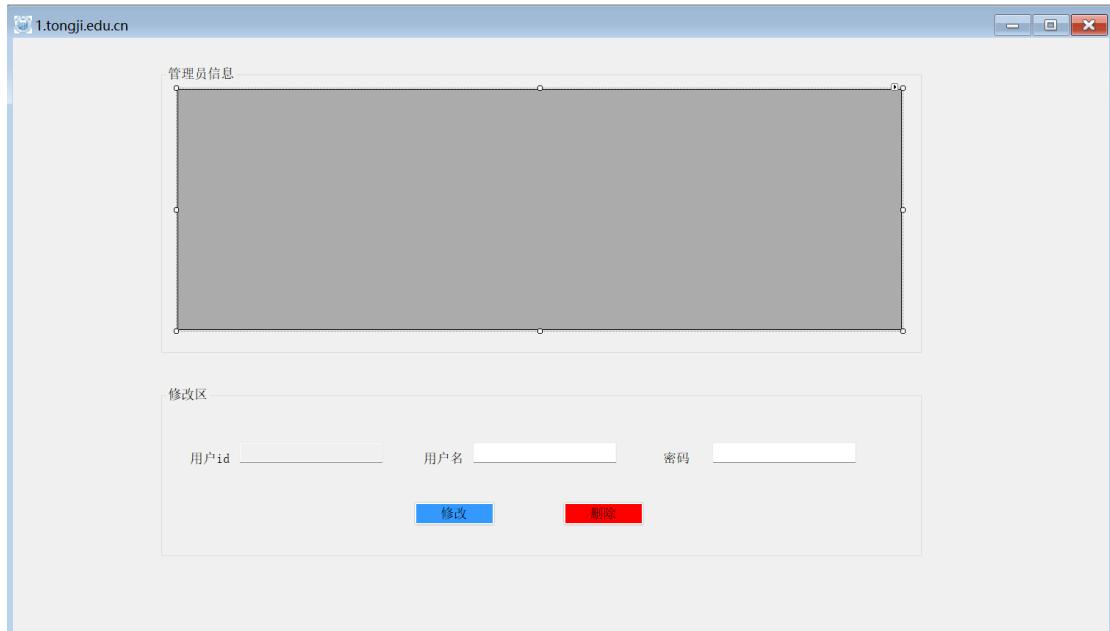
```

代码: private void button1_Click(object sender, EventArgs e)
{
    if (textBox1.Text.Trim() == "" || textBox2.Text.Trim() == "")
    {

```

```
    MessageBox.Show("请将信息填写完整!");
}
else
{
    if (textBox2.Text.Trim() != textBox3.Text.Trim())
    {
        MessageBox.Show("两次输入的密码不一致!");
    }
    else
    {
        SqlConnection conn = new SqlConnection(登陆.connectionString);
        conn.Open();
        string sql = "select * from manager where manname =
'"+textBox1.Text+"'";
        SqlDataAdapter adp = new SqlDataAdapter(sql, conn);
        DataSet ds = new DataSet();
        adp.Fill(ds);
        if (ds.Tables[0].Rows.Count > 0)
        {
            MessageBox.Show("已经存在的用户名!");
        }
        else
        {
            SqlCommand cmd = new SqlCommand();
            cmd.Connection = conn;
            sql = "insert into manager (manname,manpasswd) values ('"
                + textBox1.Text.Trim() + "','" + textBox2.Text.Trim() + "')";
            cmd.CommandText = sql;
            cmd.ExecuteNonQuery();
            MessageBox.Show("添加用户成功!");
        }
        conn.Close();
    }
}
```

5) 修改管理员信息



```
代码: private void mos_click(object sender, DataGridViewCellMouseEventArgs e)
{
    if (dataGridView1.SelectedCells.Count != 0)
    {
        textBox3.Text =
            dataGridView1.SelectedRows[0].Cells[0].Value.ToString();
        textBox1.Text =
            dataGridView1.SelectedRows[0].Cells[1].Value.ToString();
        textBox2.Text =
            dataGridView1.SelectedRows[0].Cells[2].Value.ToString();
    }
}

private void getRusult()
{
    SqlConnection conn = new SqlConnection(登陆.connectionString);
    conn.Open();
    //textBox1.Text.Trim()  textBox2.Text.Trim()
    string sql = "select manid as 用户id, manname as 用户名, manpasswd as 密码
from manager";
    SqlDataAdapter adp1 = new SqlDataAdapter(sql, conn);
    DataSet ds = new DataSet();
    adp1.Fill(ds);
    //载入基本信息
    dataGridView1.DataSource = ds.Tables[0].DefaultView;
    conn.Close();
}
```

```

private void button1_Click(object sender, EventArgs e)
{
    SqlConnection conn = new SqlConnection(登陆.connectionString);
    conn.Open();
    int id = 0 ;
    int.TryParse(textBox3.Text, out id);
    string sql = "update manager set manname = '" + textBox1.Text +
    "' , manpasswd = '" + textBox2.Text + "' where manid = " + id;
    SqlCommand cmd = new SqlCommand(sql, conn);
    if (cmd.ExecuteNonQuery() > 0)
    {
        this.getRusult();
        MessageBox.Show("更改成功！");
    }
    conn.Close();
}

private void button2_Click(object sender, EventArgs e)
{
    SqlConnection conn = new SqlConnection(登陆.connectionString);
    conn.Open();
    int id = 0;
    int.TryParse(textBox3.Text, out id);
    string sql = "delete from manager where manid = " + id;
    SqlCommand cmd = new SqlCommand(sql, conn);
    if (cmd.ExecuteNonQuery() > 0)
    {
        this.getRusult();
        MessageBox.Show("删除成功！");
    }
    conn.Close();
}

```

6) 开课



```
代码: private void groupBox1_Enter(object sender, EventArgs e)
{
}

private void button1_Click(object sender, EventArgs e)
{
    string teacher = textBoxteacher.Text;
    string classes = textBoxclass.Text;
    string term = comboBoxterm.SelectedItem.ToString();
    string flags = "1";
    SqlConnection conn = new SqlConnection(登陆.connectionString);
    conn.Open();
    SqlCommand cmd = new SqlCommand();
    cmd.Connection = conn;
    //将开课信息插入到开课表里

    //MessageBox.Show("开设课程成功!");
    string sql = "";
    //得到上课的地点
    string didian = comboBoxdidian.SelectedItem.ToString();
    //checkedListBoxtme

    for (int i = 0; i < checkedListBoxtme.Items.Count; i++)
    {
        if (checkedListBoxtme.GetItemChecked(i))
        {
            string time =
```

```

checkedListBoxtime.GetItemText(checkedListBoxtime.Items[i]);
        sql = "select * from sctime where sctime = '" + time + "' and
location = '" + didian + "'";
        SqlDataAdapter adp = new SqlDataAdapter(sql, conn);
        DataSet ds = new DataSet();
        adp.Fill(ds);
        if (ds.Tables[0].Rows.Count > 0)
        {
            flags = "2";
            MessageBox.Show("该时间该教室已经有课！");
            break;
        }
        else
        {
            flags = "1";
            break;
        }
    }

if (flags == "1")
{
    sql = "insert into class (claname,term,teacher) values ('" + classes +
"','" + term + "','" + teacher + "')";
    cmd.CommandText = sql;
    cmd.ExecuteNonQuery();

for (int i = 0; i < checkedListBoxtime.Items.Count; i++)
{
    if (checkedListBoxtime.GetItemChecked(i))
    {
        string time =
checkedListBoxtime.GetItemText(checkedListBoxtime.Items[i]);
        //将开课表的id得到
        sql = "select claid from class where claname = '" + classes +
" and term = '" + term + "' and teacher = '" + teacher + "'";
        cmd.CommandText = sql;
        String id1 = cmd.ExecuteScalar().ToString();
        int id = 0;
        int.TryParse(id1, out id);
        sql = "insert into sctime values(" + id + "," + time + "," +
didian + ")";
    }
}

```

```

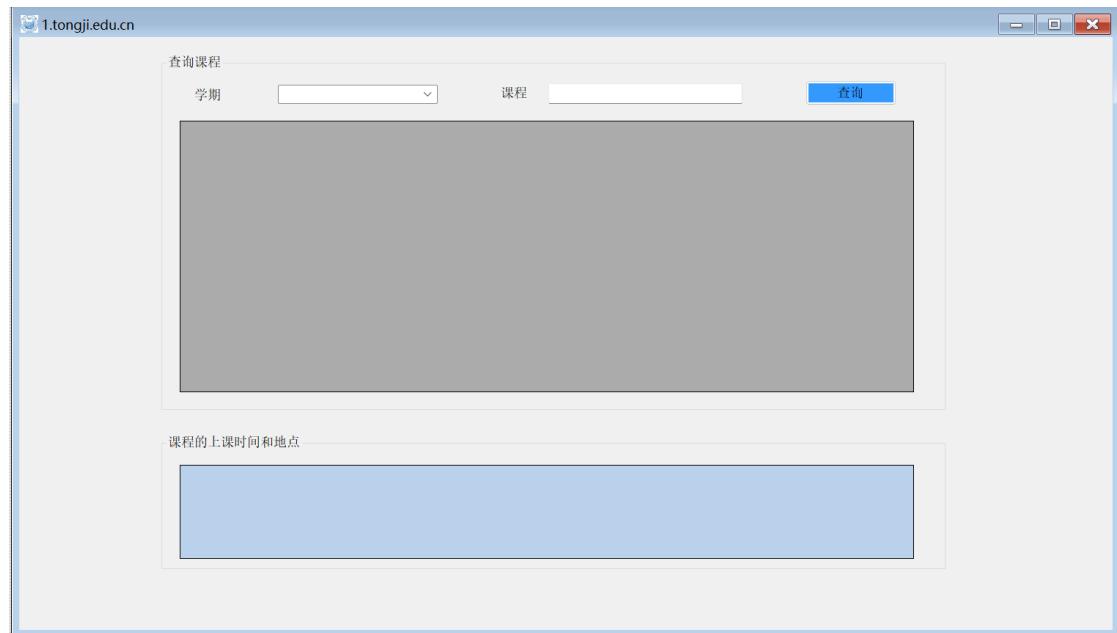
        cmd.CommandText = sql;
        cmd.ExecuteNonQuery();
    }
}

MessageBox.Show("开设课程成功！");
}

conn.Close();

```

7) 查询课程



代码:

```

private void button1_Click(object sender, EventArgs e)
{
    while (dataGridView1.Rows.Count != 0)
    {
        dataGridView1.DataSource = null;
    }
    if (comboBoxterm.Text == "" && textBoxclass.Text == "")
    {
        MessageBox.Show("请输入查询信息！");
    }
    else if (comboBoxterm.Text != "" && textBoxclass.Text == "")
    {
        SqlConnection conn = new SqlConnection(登陆.connectionString);
        conn.Open();
        string sql = "select claid as 课程id, claname as 课程名, term as 学期, teacher as 老师 from class where term = '" + comboBoxterm.SelectedItem.ToString() +
"'";
        SqlDataAdapter adp1 = new SqlDataAdapter(sql, conn);
        DataSet ds = new DataSet();

```

```

        adp1.Fill(ds);
        //载入基本信息
        dataGridView1.DataSource = ds.Tables[0].DefaultView;
        conn.Close();
    }

    else if (textBoxclass.Text != "" && comboBoxterm.Text == "")
    {

        SqlConnection conn = new SqlConnection(登陆.connectionString);
        conn.Open();
        //textBox1.Text.Trim()  textBox2.Text.Trim()
        string sql = "select claid as 课程id,claname as 课程名,term as 学
期,teacher as 老师 from class where claname = '" + textBoxclass.Text + "'";
        SqlDataAdapter adp1 = new SqlDataAdapter(sql, conn);
        DataSet ds = new DataSet();
        adp1.Fill(ds);
        //载入基本信息
        dataGridView1.DataSource = ds.Tables[0].DefaultView;
        conn.Close();

    }

    else if (textBoxclass.Text != "" && comboBoxterm.Text != "")
    {

        SqlConnection conn = new SqlConnection(登陆.connectionString);
        conn.Open();
        //textBox1.Text.Trim()  textBox2.Text.Trim()
        string sql = "select claid as 课程id,claname as 课程名,term as 学
期,teacher as 老师 from class where claname = '" + textBoxclass.Text + "' and term = "
+ comboBoxterm.SelectedItem.ToString() + "'";
        SqlDataAdapter adp1 = new SqlDataAdapter(sql, conn);
        DataSet ds = new DataSet();
        adp1.Fill(ds);
        //载入基本信息
        dataGridView1.DataSource = ds.Tables[0].DefaultView;
        conn.Close();

    }

}

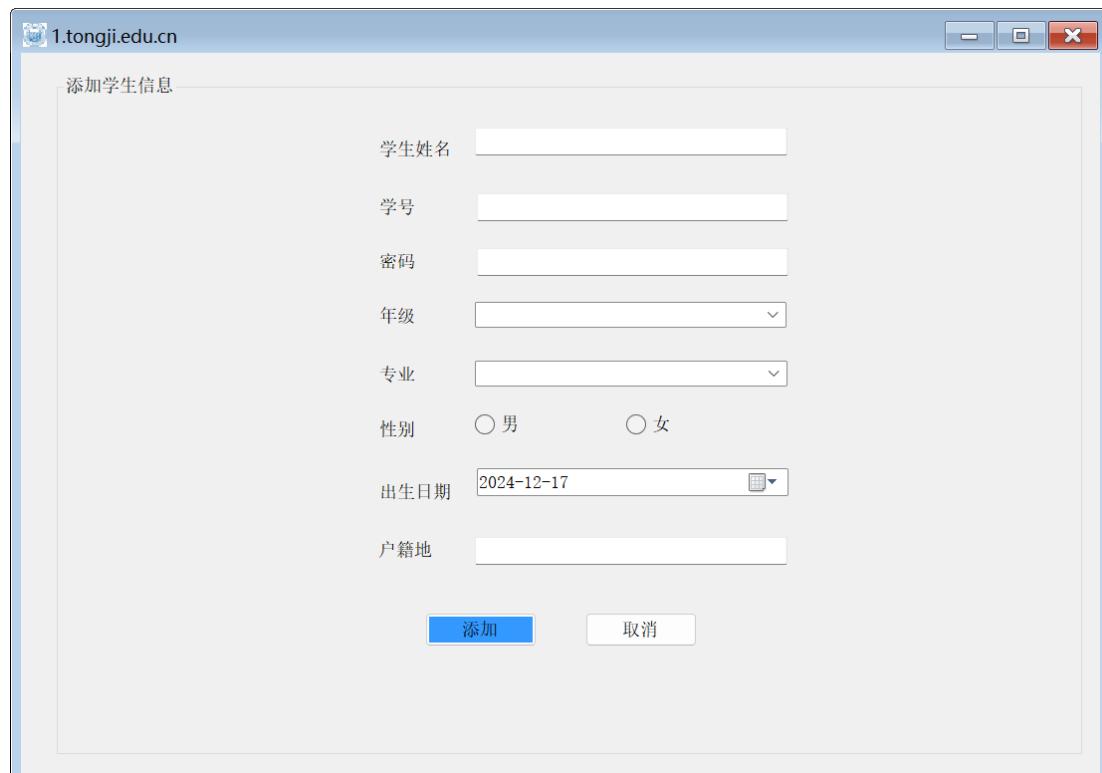
```

```

private void dataGridView1_RowHeaderMouseClick(object sender,
DataGridViewCellEventArgs e)
{
    if (dataGridView1.SelectedCells.Count != 0)
    {
        string claid = dataGridView1.SelectedRows[0].Cells[0].Value.ToString();
        SqlConnection conn = new SqlConnection(登陆.connectionString);
        conn.Open();
        string sql = "select sctime as 上课时间, location as 上课地点 from
sctime where claid=" + claid;
        SqlDataAdapter adp1 = new SqlDataAdapter(sql, conn);
        DataSet ds = new DataSet();
        adp1.Fill(ds);
        //载入基本信息
        dataGridView2.DataSource = ds.Tables[0].DefaultView;
        conn.Close();
    }
}

```

8) 添加学生信息



```

代码: private void button1_Click(object sender, EventArgs e)
{
    SqlConnection conn = new SqlConnection(登陆 connectionString);
    conn.Open();
    string sql = "select * from student where stuxuehao='"
    textBoxpname.Text.Trim() + "'";
    SqlDataAdapter adp = new SqlDataAdapter(sql, conn);
    DataSet ds = new DataSet();
}

```

```

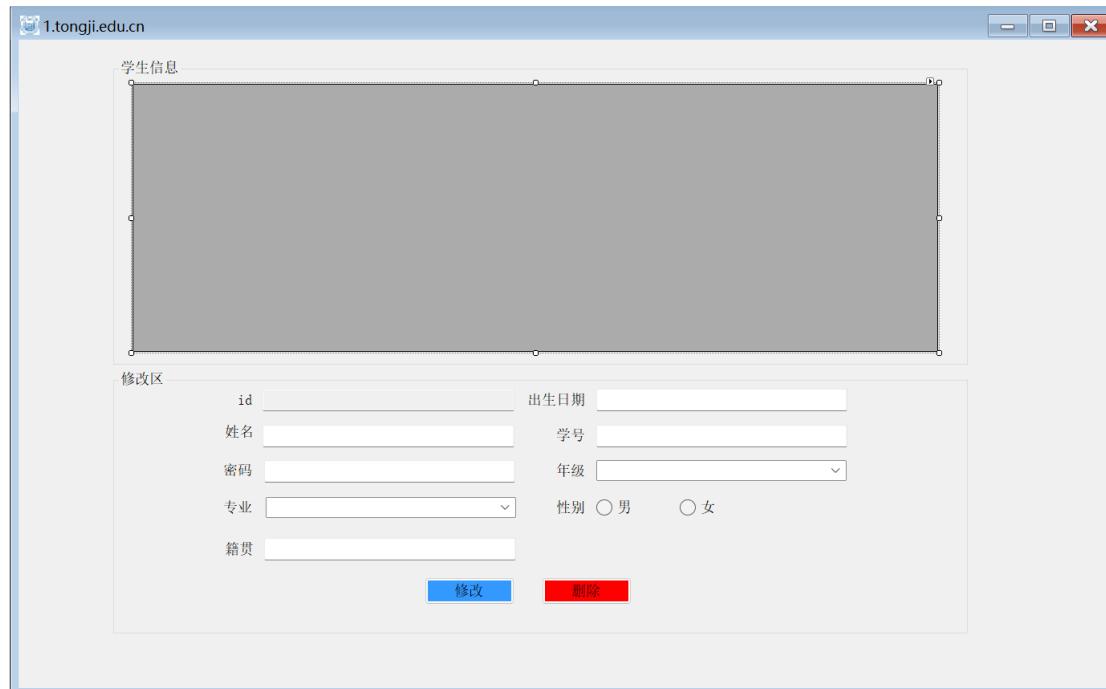
adp.Fill(ds);
if (ds.Tables[0].Rows.Count > 0)
{
    MessageBox.Show("已经存在的学生学号！");
}

else
{
    SqlCommand cmd = new SqlCommand();
    cmd.Connection = conn;
    string gender = radioButton1.Checked ? "男" : "女";
    sql = "insert into
student(stuname, stuxuehao , stupasswd, stugrade , stumajor, stusex, stuborn, stuhometown)valu
es('" + textBoxname.Text.Trim() + "','" + textBoxpname.Text.Trim() + "','" + "
textBoxpasswd.Text.Trim() + "','" + comboBoxgrade.SelectedItem.ToString() + "','" + "
comboBoxmajor.SelectedItem.ToString() + "','" + gender + "','" +
dateTimePicker1.Value.ToString("yyyy-MM-dd") + "','" + textBoxhometown.Text.Trim() +
"')";

    cmd.CommandText = sql;
    cmd.ExecuteNonQuery();
    MessageBox.Show("添加用户成功！");
}
conn.Close();
}

```

9) 修改学生信息



代码: `private void getResult()`

```
{

```

```

    SqlConnection conn = new SqlConnection(登陆.connectionString);
    conn.Open();
    //textBox1.Text.Trim()  textBox2.Text.Trim()
    string sql = "select stuid as 用户id, stuname as 真实姓名, stuxuehao as 学号, stupasswd as 密码, stugrade as 年级, stumajor as 专业, stusex as 性别, stuborn as 出生日期, stuhometown as 籍贯 from student";
    SqlDataAdapter adp1 = new SqlDataAdapter(sql, conn);
    DataSet ds = new DataSet();
    adp1.Fill(ds);
    //载入基本信息
    dataGridView1.DataSource = ds.Tables[0].DefaultView;
    conn.Close();
}

private void mos_click(object sender, DataGridViewCellEventArgs e)
{
    textBoxname.Text = dataGridView1.SelectedRows[0].Cells[1].Value.ToString();
    textBoxborn.Text = dataGridView1.SelectedRows[0].Cells[7].Value.ToString();
    comboBoxgrade.Text =
        dataGridView1.SelectedRows[0].Cells[4].Value.ToString();
    textBoxhometown.Text =
        dataGridView1.SelectedRows[0].Cells[8].Value.ToString();
    comboBoxmajor.Text =
        dataGridView1.SelectedRows[0].Cells[5].Value.ToString();
    textBoxpasswd.Text =
        dataGridView1.SelectedRows[0].Cells[3].Value.ToString();
    textBoxpname.Text =
        dataGridView1.SelectedRows[0].Cells[2].Value.ToString();
    textBoxid.Text = dataGridView1.SelectedRows[0].Cells[0].Value.ToString();
    string gender = dataGridView1.SelectedRows[0].Cells[6].Value.ToString();

    if (gender == "男")
    {
        radioButton1.Select();
    }
    else
    {
        radioButton2.Select();
    }
}

private void textBoxname_TextChanged(object sender, EventArgs e)
{
}

```

```

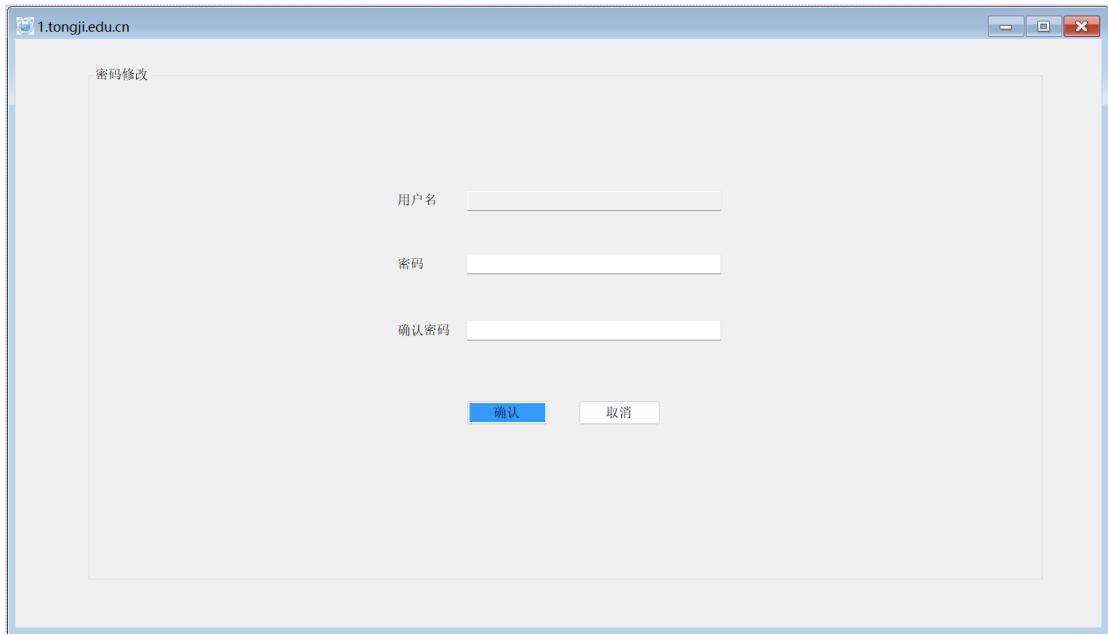
        }

private void button1_Click(object sender, EventArgs e)
{
    SqlConnection conn = new SqlConnection(登陆.connectionString);
    conn.Open();
    string gender = radioButton1.Checked ? "男" : "女";
    int id = 0;
    int.TryParse(textBoxid.Text, out id);
    //this.comboBoxrole.SelectedItem.ToString()
    string major = comboBoxmajor.SelectedItem.ToString();
    string grade = comboBoxgrade.SelectedItem.ToString();
    string sql = "update student set stuname = '" + textBoxname.Text + "', stubborn =
    '" + textBoxborn.Text + "' , stugrade = '" + grade + "' , stuhometown =
    '" + textBoxhometown.Text + "' , stumajor = '" + major + "' , stupasswd =
    '" + textBoxpasswd.Text + "' , stuxuehao = '" + textBoxpname.Text + "' , stusex = '" + gender + "'";
    where stuid = "+id;
    SqlCommand cmd = new SqlCommand(sql, conn);
    if (cmd.ExecuteNonQuery() > 0)
    {
        MessageBox.Show("更改成功!");
        this.getRusult();
    }
    conn.Close();
}

private void button2_Click(object sender, EventArgs e)
{
    SqlConnection conn = new SqlConnection(登陆.connectionString);
    conn.Open();
    int id = 0;
    int.TryParse(textBoxid.Text, out id);
    string sql = "delete from student where stuid = " + id;
    SqlCommand cmd = new SqlCommand(sql, conn);
    if (cmd.ExecuteNonQuery() > 0)
    {
        MessageBox.Show("删除成功!");
        this.getRusult();
    }
}

```

10) 修改密码



代码: public partial class 密码修改 : Form

```
    {
        public 密码修改()
        {
            InitializeComponent();
        }

        private void modifymimaForm_Load(object sender, EventArgs e)
        {
            textBox1.Text = 登陆.getStudent();

        }

        private void button1_Click(object sender, EventArgs e)
        {
            string passwd = textBox2.Text;
            string quepasswd = textBox3.Text;
            SqlConnection conn = new SqlConnection(登陆.connectionString);
            conn.Open();
            if (passwd == "" || quepasswd == "")
            {
                MessageBox.Show("请将信息填写完整!");
            }
            else
            {
                if (quepasswd != passwd)
                {
                    MessageBox.Show("两次输入的密码不一致!");
                }
            }
        }
    }
```

```

        }
    else
    {

        if(登陆.getRole()=="学生")
        {
            SqlCommand cmd = new SqlCommand();
            cmd.Connection = conn;
            string sql = "update student set stupasswd ='"+ passwd+"'" + where
stuxuehao = '+"+textBox1.Text+"'";
            cmd.CommandText = sql;
            cmd.ExecuteNonQuery();
            MessageBox.Show("修改密码成功！");
        }

        else
        {
            SqlCommand cmd = new SqlCommand();
            cmd.Connection = conn;
            string sql = "update manager set manpasswd ='"+ passwd+"'" + where
manname = '+"+textBox1.Text+"'";
            cmd.CommandText = sql;
            cmd.ExecuteNonQuery();
            MessageBox.Show("修改密码成功！");
        }

    }

    conn.Close();
}

```

三. 系统测试

3.1 触发器测试用例

■ 结果 ■ 消息

	claid	claname	term	teacher
1	1	大学英语四级	2425第一学期	孙丹
2	2	电气技术基础	2324第二学期	袁弘良
3	3	电子学与数字技术2	2425第一学期	霍勇
4	4	机械设计基础	2425第一学期	谢春
5	5	数据库技术与应用	2425第一学期	王睿智
6	6	人工智能技术与应用	2425第二学期	王睿智

	sctimeid	claid	sctime	location
4	4	3	星期一第一节	A104
5	5	3	星期一第二节	A104
6	6	4	星期三第一节	B102
7	7	4	星期三第二节	B102
8	8	5	星期一第一节	A203
9	9	5	星期一第二节	A203
10	10	6	星期一第三节	A103
11	11	6	星期一第四节	A103

	scid	stuid	claid
1	7	2251115	1
2	8	2251115	2
3	9	2251115	4


```

- delete from class where claid=4
  select * from class
  select * from sctime
  select * from sc

```

146 %

■ 消息

(2 行受影响)

(1 行受影响)

(1 行受影响)

完成时间: 2024-12-26T22:06:25.7000245+08:00

```
delete from class where claid=4  
select * from class  
select * from sctime  
select * from sc
```

146 %

结果 消息

	claid	claname	term	teacher
1	1	大学英语四级	2425第一学期	孙丹
2	2	电气技术基础	2324第二学期	袁弘良
3	3	电子学与数字技术2	2425第一学期	霍勇
4	5	数据库技术与应用	2425第一学期	王睿智
5	6	人工智能技术与应用	2425第二学期	王睿智

	sctimeid	claid	sctime	location
1	1	1	星期一第一节	A102
2	2	1	星期一第二节	A102
3	3	2	星期一第三节	B102
4	4	3	星期一第一节	A104
5	5	3	星期一第二节	A104
6	8	5	星期一第一节	A203
7	9	5	星期一第二节	A203
8	10	6	星期一第三节	A103
9	11	6	星期一第四节	A103

	scid	stuid	claid
1	7	2251115	1
2	8	2251115	2